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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY-DOCKET NO. | CONFIRMATION NO. |
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| 10/019,584 | 05/09/2002 | Dieter Emmer | 112740-390 | 8729 |
| 29177 | 7590 | 05/20/2005 | EXAMINER | |
| BELL, BOYD & LLOYD, LLC P. O. BOX 1135 CHICAGO, IL 60690-1135 | | | FIGUEROA, MARISOL | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2681 | |

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,584

Applicant(s)

EMMER ET AL.

Examiner

Marisol Figueroa

Art Unit

2681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/21/2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Page 12, line 18; the short form for transceiver apparently is misspelled, "GX/RX" should apparently be changed to "TX/RX". Appropriate correction is required.

Drawings

2. The drawings are objected to because of the following informalities: in page 3, the Applicant's disclosure about Figure 3 mentions the term "RNM" which doesn't appear in Figure 3, the Examiner notices that the term "RNM" should apparently be where the term "RNC" is. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claim 26** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Applicant's disclosure fails to address the content of claim 26, in where he discloses a cellular radio communications system as claimed in claim 25, further comprising "antennas, in the base stations, having a restricted directional pattern and being arranged for avoiding weak interferences", the closest description is on page 8, lines 24-26, in where he discloses "the arrangement of, in each case, a separate base station with an omnidirectional antenna in the center of each individual cell", without those additional details one of ordinary skill in the art would have been burdened by undo experimentation to make or use the claimed invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2681

6. **Claims 14-16 and 25** are rejected under 35 U.S.C. 102(e) as being anticipated by **Gilbert et al. U.S. Patent No. 6,016,311**.

Regarding claim 14, Gilbert discloses a method for controlling a channel allocation in transmission frames having a plurality of channels for information transmission in a communications system (col.4, lines 42-45; the method allocates time slots (channels) of a frame for uplink/downlink (information) transmission) having a plurality of cells (col.5, lines 12-16), the method comprising the steps of:

ordering the cells into cell groups and forming clusters from each of the cell groups in a cell (col.5, lines 14-16; col.13, lines 26-30);

allocating to each cluster a transmission frame (col.13, lines 59-66; col.14, lines 39-49; col.19, lines 7-10; the cluster controller controls time slot (channel) allocations for each base station within a cluster according to bandwidth requirements of a communication channel), the channels of which are allocated to the cells of the respective cluster such that the channels are variably allocated to the cells within the cluster (col.15, lines 30-33; col.19, lines 7-10), the channels are jointly allocated to the cells within the cluster and each allocation takes place for, optionally, one of an uplink and a downlink (col.4, lines 42-45; col.5, lines 50-52; col.13, lines 53-56) and

leaving a link direction the same in, respectively, the uplink and the allocation downlink in the case of channel assignment to another cell in the cluster (col.8, lines 48-65; a frame-based approach for allocating time slots (channels) in a communication channel in where a predetermined number of time slots N_1 is configured for downlink transmissions only and the remaining time slots can be used either for uplink or downlink transmissions).

Regarding claim 15, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, the method further comprising the step of using time slots of a TDD transmission frame as channels (col.4, lines 33-35).

Regarding claim 16, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, the method further comprising the step of controlling switching points between uplinks and downlinks within one of a cell and a group of cells in dependence on changing load distributions in at least one of the cell, the group of cells, and the communication network, wherein a different number of channels per, respectively, the cell and the cell group is allocated (col.13, lines 51-56, 59-67; col.14, lines 1-6; it is inherent that the cluster controller controls the switching points between uplinks and downlinks of the group of cells according to the load demands, e.g. bandwidth requirements, of each of the base stations in a cluster).

Regarding claim 25, Gilbert discloses a cellular radio communications system, comprising: at least one base station (col.9, lines 57-60); at least one mobile station (col.9, lines 60-65); devices for allocating radio engineering resources (col.10, lines 35-40, 52-59; col.13, lines 51-56; network management computer system or cluster controller); at least one mobile switching center (col.10, lines 35-40; electronic switching apparatus); and circuits in at least one of the base station, the mobile station, the devices for allocating radio engineering resources and the mobile switching center (col.18, lines 1-3), the circuits being for controlling a channel allocation in transmission frames having a plurality of channels for information transmission in the communications system (col.18, lines 1-22), which has a plurality of cells, wherein the cells are ordered into cell groups and clusters are formed from each of the cell groups (col.5, lines 14-16; col.13, lines 26-30), a transmission frame is allocated to each cluster (col.13, lines 59-66; col.14, lines 39-49; col.19, lines 7-

Art Unit: 2681

10; the cluster controller controls time slot (channel) allocations for each base station within a cluster according to bandwidth requirements of a communication channel), the channels of the transmission frame being allocated to the cells of the respective cluster such that the channels are variably allocated to the cells within the cluster (col.15, lines 30-33; col.19, lines 7-10), the channels are jointly allocated to the cells within the cluster and each allocation takes place for, optionally, one of an uplink and a downlink (col.4, lines 42-45; col.5, lines 50-52; col.13, lines 53-56) and, in the case of a channel assignment to another cell in the cluster, a link direction is the same in, respectively, the uplink and the downlink (col.8, lines 48-65; a frame-based approach for allocating time slots (channels) in a communication channel in where a predetermined number of time slots N_1 is configured for downlink transmissions only and the remaining time slots can be used either for uplink or downlink transmissions).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 17, 22 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gilbert et al.**

Regarding claim 17, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, but fails to disclose further comprising the step of controlling a number of switching points between uplinks and downlinks within a group of cells independently in time and variable of the switching points of one of the adjacent cells and to the

groups of cells. However Gilbert discloses that the cluster controller controls the time slot allocation upon bandwidth requirements of each of the base station in a cluster (col.13, lines 51-56; col.14, lines 6). Therefore, it would have been obvious to one having ordinary skill to recognize that the cluster controller will control a number of switching points since it allocates time slots according to the different bandwidth requirements of each cell in the cluster.

Regarding claim 22, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, but fails to disclose wherein one of the cells and the group of cells are arranged in a cluster of two arrangement. At the time of the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to group cells in a two cluster arrangement because Applicant has not disclosed that a two cell cluster arrangement provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with 7 clusters (col.13, lines 30-32) because cell grouped into clusters reduce the effects of co-channel interference.

Regarding claim 24, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, in where the direction of connection of active and directly adjacent cells is in each case the same (col.13, lines 48-50). Gilbert fails to disclose the method further comprising the step of controlling a number of time-variable switching points with alternating uplink and downlink change by successive cell-related channel allocations within a transmission frame. However Gilbert discloses that the cluster controller controls the time slot allocation upon bandwidth requirements of each of the base station in a cluster (col.13, lines 51-56; col.14, lines 6). Therefore, it would have been obvious to one having ordinary skill to recognize that

the cluster controller will control a number of switching points since it allocates time slots according to the different bandwidth requirements of each cell in the cluster.

9. **Claims 18 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gilbert et al.** in view of **Rappaport U.S. Patent No. 5,722,043**.

Regarding claim 18, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, but fails to disclose wherein one of the cells and the group of cells are arranged in a cluster of three arrangement. Rappaport discloses a communication system in which cells are grouped into clusters of similarly configured cells having distinct channel assignments (col.6, lines 18-39), preferably the clusters size are composed of 3, 4, 7, 9 cells for example. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to group cells in a three cluster arrangement because it is desirable to choose a cell cluster size such as each cell cluster of the communication system is symmetric, for example clusters composed of 3, 4, 7 cells.

Regarding claim 20, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, but fails to disclose wherein one of the cells and the group of cells are arranged in a cluster of four arrangement. Rappaport discloses a communication system in which cells are grouped into clusters of similarly configured cells having distinct channel assignments (col.6, lines 18-39), preferably the clusters size are composed of 3, 4, 7, 9 cells for example. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to group cells in a four cluster arrangement because it is desirable to choose a cell cluster size such as each cell cluster of the communication system is symmetric, for example clusters composed of 3, 4, 7 cells.

Art Unit: 2681

10. **Claims 19 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gilbert et al.** in view of **Rappaport**, and further in view of **Charas U.S. Patent No. 6,549,531**.

Regarding claim 19, the combination of Gilbert and Rappaport discloses a method for controlling a channel allocation in transmission frames as claimed in claim 18, but fails to disclose further comprising the step of matching the switching points between uplinks and downlinks within one of a cell and a group of cells to up to three groups of active adjacent cells. Charas discloses a multicell TDMA radio communication system and equipment providing a very efficient use of the available transmission capacity in where available time slots for radio communication in a cell can be adaptively selected or fixedly allocated (col.2, lines 25-29, 65-67). The time slots in a frame are equally distributed to each cell (col.3, lines 18-25), consequently there is an equal number of switching points in the frame as there is cells. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to match the number of switching points to the number of cells in the groups to provide an efficient use of the available transmission capacity.

Regarding claim 21, the combination of Gilbert and Rappaport discloses a method for controlling a channel allocation in transmission frames as claimed in claim 20, the method further comprising the step of matching the switching points between uplinks and downlinks within one of a cell and a group of cells to up to three groups of active adjacent cells. Charas discloses a multicell TDMA radio communication system and equipment providing a very efficient use of the available transmission capacity in where available time slots for radio communication in a cell can be adaptively selected or fixedly allocated (col.2, lines 25-29, 65-67). The time slots in a frame are equally distributed to each cell (col.3, lines 18-25), consequently there is an equal number of switching points in the frame as there is cells. Therefore, it would have been obvious to one having

Art Unit: 2681

ordinary skill in the art at the time of the invention, to match the number of switching points to the number of cells in the groups to provide an efficient use of the available transmission capacity.

11. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gilbert et al.** in view of **Ahmadi et al. U.S. Patent No. 5,613,198**.

Regarding claim 23, Gilbert discloses a method for controlling a channel allocation in transmission frames as claimed in claim 14, in where cells within a cluster transmission takes place in the same direction (col.13, lines 48-50). However fails to disclose, wherein, when the cells are arranged in a plurality of clusters, only cells of different cell groups are arranged directly adjacently from cluster to cluster and, is adjacent and simultaneously active cells of different clusters. Ahmadi illustrates in figure 2 (col.4, lines 54-61), a formation of two super-cell of fourteen cells, super-cell 1 consists of cells 1, 3, 5, 7, 9, 11, 13 and the second super-cell consists of cells 2, 4, 6, 8, 10, 12, 14, the cells from different clusters are directly adjacent. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention, to form cluster in which cells from different cluster are directly adjacent to minimize the interference between cells (col.3, lines 11-20).

Contact Information

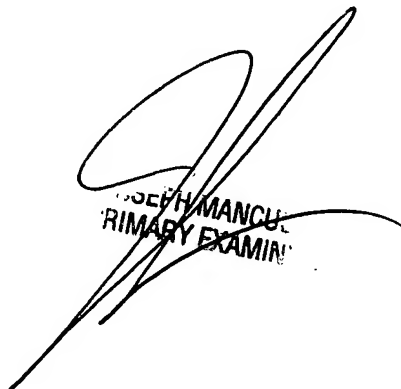
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marisol Figueroa whose telephone number is (571) 272-7840. The examiner can normally be reached on Monday thru Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise, can be reached on (571) 272-3865. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2681

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Marisol Figueroa


JOSEPH MANCUSO
PRIMARY EXAMINER